

Title (en)

Surface mount package with integral electro-static charge dissipating ring using lead frame as ESD device

Title (de)

Oberflächenmontiertes Gehäuse mit integriertem elektrostatische Ladung ableitendem Ring, das einen Leiterraahmen als ESD-Schutz Bauelement benutzt

Title (fr)

Boîtier de montage en surface avec un anneau de dissipation des charges électrostatiques intégré, utilisant un cadre de connexion contre les décharges électrostatiques

Publication

**EP 1187207 B1 20080702 (EN)**

Application

**EP 01307330 A 20010829**

Priority

US 65698400 A 20000907

Abstract (en)

[origin: EP1187207A2] In a packaged integrated circuit, electrostatic discharge protection is provided by portions of a lead frame on which the integrated circuit is mounted. The lead frame includes a die paddle on which an integrated circuit die is mounted, with plastic or epoxy material encapsulating exposed surfaces of the integrated circuit die except for a sensing surface, and supporting pins or leads formed from the lead frame. Portions of the lead frame extending from the die paddle are folded around sides of the encapsulated integrated circuit die and over, or adjacent to and level with, a peripheral upper surface of the encapsulated integrated circuit die to form an electrostatic discharge ring. The lead frame portions folded around the integrated circuit package are connected to ground through a ground pin, so that charge on a human finger touching the electrostatic discharge ring is dissipated to ground before the finger contacts a sensing surface of the integrated circuit. The portions of the lead frame which are folded around the encapsulated integrated circuit die may extend only around sides or side regions of the integrated circuit package not including pins or leads or, alternatively, may extend around all sides of the integrated circuit package and have openings where side regions of the integrated circuit package includes pins or leads.

IPC 8 full level

**H01L 23/28** (2006.01); **H01L 23/60** (2006.01); **G06K 9/00** (2006.01); **H01L 23/29** (2006.01); **H01L 23/31** (2006.01); **H01L 23/495** (2006.01); **H01L 23/50** (2006.01)

CPC (source: EP US)

**G06V 40/1329** (2022.01 - EP US); **H01L 23/49555** (2013.01 - EP US); **H01L 23/60** (2013.01 - EP US); **H01L 24/48** (2013.01 - EP US); **H01L 2224/05599** (2013.01 - EP US); **H01L 2224/45099** (2013.01 - EP US); **H01L 2224/48091** (2013.01 - EP US); **H01L 2224/85399** (2013.01 - EP US); **H01L 2924/00014** (2013.01 - EP US); **H01L 2924/01078** (2013.01 - EP US); **H01L 2924/01079** (2013.01 - EP US); **H01L 2924/14** (2013.01 - EP US); **H01L 2924/181** (2013.01 - EP US)

Cited by

EP2224482A3; EP2015223A3; US9235747B2; WO2007012992A1; US8878790B2; EP2015223A2

Designated contracting state (EPC)

DE FR GB IT

DOCDB simple family (publication)

**EP 1187207 A2 20020313**; **EP 1187207 A3 20060329**; **EP 1187207 B1 20080702**; DE 60134609 D1 20080814; JP 2002134678 A 20020510; US 2004195664 A1 20041007; US 6787388 B1 20040907; US 7061091 B2 20060613

DOCDB simple family (application)

**EP 01307330 A 20010829**; DE 60134609 T 20010829; JP 2001271813 A 20010907; US 65698400 A 20000907; US 82718404 A 20040419